

WHAT IS CLAIMED IS:

1. An apparatus for controlling pulse width modulation (PWM) frequency of a liquid crystal display (LCD), comprising:

control means for changing an LCD frame frequency of the LCD according to a system environment, and outputting information based on the changed LCD frame frequency for an LCD inverter;

PWM converting means for generating a PWM signal of the LCD inverter based on the information received from the control means; and

driving means for converting an input voltage into a signal having a waveform synchronized to the PWM signal received from the PWM converting means.

2. The apparatus of claim 1, wherein the system environment is detected electronic interference in the system environment.

3. The apparatus of claim 2, wherein the detected electronic interference results from one of an AC voltage provided to the apparatus or a voltage adaptor coupled to the apparatus.

4. The apparatus of claim 3, wherein the detected electronic interference results from a plurality of various signals affecting the LCD frame frequency.

5. The apparatus of claim 2, wherein a video controller changes a refresh rate to compensate for the detected electronic interference.

6. The apparatus of claim 1, wherein the control means comprises:
refresh rate controlling means for controlling the LCD frame frequency and outputting the controlled frame frequency information along with brightness control information for the LCD lamp; and
brightness controlling means for calculating PWM information based on the controlled frame frequency information received from the refresh rate controlling means, and outputting the calculated PWM information along with the brightness control information received from the refresh rate controller.

7. The apparatus of claim 6, further comprising:
video controlling means for controlling a video signal to be outputted to the LCD based on the frame frequency information received from the refresh rate controlling means.

8. The apparatus of claim 6, wherein the refresh rate controlling means varies the frame frequency of the LCD according to the system environment.

9. The apparatus of claim 1, wherein the information is a value corresponding to a frequency not interfering with the LCD frame frequency.

10. The apparatus of claim 9, wherein the information is a value obtained by calculating PWM information based on the frame frequency, and transforming the calculated PWM information in accordance with a predetermined rate.

11. The apparatus of claim 10, wherein the PWM information is outputted in the form of a DC level.

12. The apparatus of claim 9, wherein the information is a value obtained by multiplying the frame frequency by 4.5, and transforming the resultant value in accordance with a predetermined rate.

13. The apparatus of claim 9, wherein the PWM converting means transforms the received information having a value within a predetermined range, in accordance with a predetermined rate so that the PWM signal has a frequency within a predetermined frequency range.

14. The apparatus of claim 13, wherein the PWM signal generated by the driving means is based on brightness control information received from the control means, wherein the PWM converting means controls an on-time duty of the PWM signal based on the received brightness control information.

15. The apparatus of claim 1, wherein the PWM converting means comprises:
frequency outputting means for outputting a signal having a frequency
corresponding to the information received from the control means; and
comparing means for comparing the signal outputted from the frequency
outputting means with brightness control information received from the control means to
output the PWM signal.

16. The apparatus of claim 15, wherein the PWM converting means comprises
level shift means for leveling up the PWM information received from the control means to
by predetermined level.

17. The apparatus of claim 1, comprising:
the LCD for displaying a video signal in accordance with the frame
frequency; and
an LCD lamp for back lighting of the LCD, wherein the driving means is an
inverter.

18. The apparatus of claim 17, wherein the LCD is used in a portable appliance.

19. A method for controlling an inverter pulse width modulation (PWM)
frequency of a liquid crystal display (LCD), comprising:

identifying a frame frequency of the LCD, and outputting PWM information based on the identified frame frequency; and

generating a PWM signal, based on the PWM information and brightness control information for an LCD lamp.

20. The method of claim 19, wherein the identifying selects one of a plurality of frame frequencies according to a system environment.

21. The method of claim 20, wherein the system environment is detected electronic interference in the system environment, and wherein the detected electronic interference results from one of an AC voltage provided to the system or a voltage adaptor coupled to the system.

22. The method of claim 19, comprising converting an input voltage received from a power source into a signal having a waveform synchronized to the PWM signal.

23. The method of claim 22, wherein the PWM information is a value corresponding to a frequency that does not substantially interfere with the frame frequency, the non-interfering frequency corresponding to a frequency of the PWM signal to which the input voltage is converted.

24. The method of claim 23, wherein the PWM information is a value obtained by multiplying the frame frequency by 4.5, and transforming the resultant value in accordance with a predetermined rate, and wherein the PWM information is outputted in the form of a DC level.

25. The method of claim 19, wherein the generating comprises transforming the PWM information having a value within a predetermined range, in accordance with a predetermined rate for generating a PWM signal having a frequency within a predetermined frequency range.

26. The method of claim 25, wherein the brightness control information is used to control an on-time duty of the PWM signal.

27. The method of claim 19, wherein the generating comprises:
leveling up the PWM information by a predetermined level;
outputting a first signal having a frequency corresponding to the leveled PWM information; and
comparing the first signal with the brightness control information to output the PWM signal.

28. The method of claim 19, comprising varying the frame frequency of the LCD.

29. The method of claim 28, wherein the frame frequency is varied under a system environment in which electric power is supplied only from a battery.

30. An apparatus configured to control an inverter pulse width modulation (PWM) frequency of a liquid crystal display (LCD), comprising:

a controller configured to select each of a plurality of different frame frequencies of the LCD based on a system environment and output PWM information based on the selected frame frequency for an LCD lamp; and

a PWM converter configured to generate a PWM signal based on the PWM information.

31. The apparatus of claim 30, comprising an inverter configured to convert an input voltage into a signal having a waveform synchronized to the PWM signal received from the PWM converter, wherein the PWM signal is based on brightness control information for the LCD lamp received from the controller.